Silicon

14
Si
28.0855(3)

Online discussions

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background

Key data; description

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silicon around us

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silicon compounds

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Radii in compounds

Lattice energies

Reduction potentials

electronic properties

Electronic configuration

Ionization energies

Electron affinities

Thermal Properties and temperatures

Temperatures

View... Go!

Melting point [/K]: 1687 [or 1414 °C (2577 °F)]

View... Go!

Boiling point [/K]: 3173 [or 2900 °C (5252 °F)] (liquid range: 1486 K)

View... Go!

Critical temperature [/K]: no data

View... Go!

Superconduction temperature [/K]: no data

Show elements whose melting point is

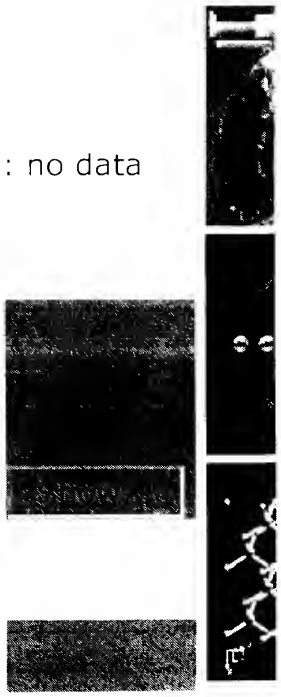
> or = K

sorted ascending by melting point

Show elements whose boiling point is

> or = K

Pi
Sw
Go a
B
Al
Ga



Electronegativities

Effective nuclear charges

Electron binding energies

Atom radii

Valence shell radii

physical properties

Bulk properties (density, resistivity, etc.)

Thermal properties (melting point, etc.)

Thermodynamic properties

crystallography

Crystal structure

[view VR world]

[view pdb image]

nuclear properties

NMR

Naturally occurring isotopes

Radioisotopes

WebElements

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sorted ascending by boiling point

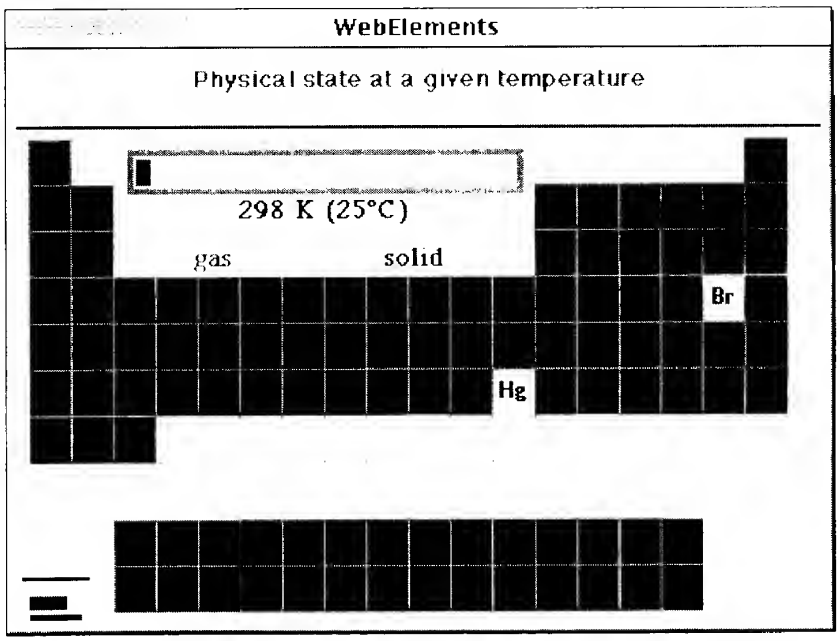
Melting point

1. Drag cursor around plot area to show information.
2. Click on element within plot area to go to that element.

4000

0

2 10 18 36 54 86 118



- Animate the above image by quicktime movie

com
Select
below
Fluo
SiF
Chlo
SiC
Bron
SiB
Iodi
SiI
Hydr
SiH
SI_2
Oxid
SiO
Sulfi
SiS
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Tellu
non
Nitri
SI_3

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(large file: 275 k, QuickTime player required.)
- Animate the above image by animated gif (large file: 270 k)

Expansion and conduction properties

View... Go! Thermal conductivity [/W m^{-1} K^{-1}]: 150

View... Go! Coefficient of linear thermal expansion [/K^{-1} multiplied by 10^6]: 2.6

Enthalpies

View... Go! Enthalpy of fusion [/kJ mol^{-1}]: 50.2

View... Go! Enthalpy of vaporization [/kJ mol^{-1}]: 359

View... Go! Enthalpy of atomization [/kJ mol^{-1}]: 456

Show elements whose enthalpy of fusion is
> or = _____ kJ mol^{-1}
sorted ascending by
enthalpy of fusion

WebElements is the periodic table on the WWW

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Window Version

Show Table With:
Name
Atomic Number
Atomic Mass
Electron Configuration
Number of Neutrons
Melting Point
Boiling Point
Date of Discovery
Crystal Structure

Element Groups:
Alkali Metals
Alkaline Earth Metals
Transition Metals
Other Metals
Metalloids
Non-Metals
Halogens
Noble Gases
Rare Earth Elements

Periodic Table: Silicon

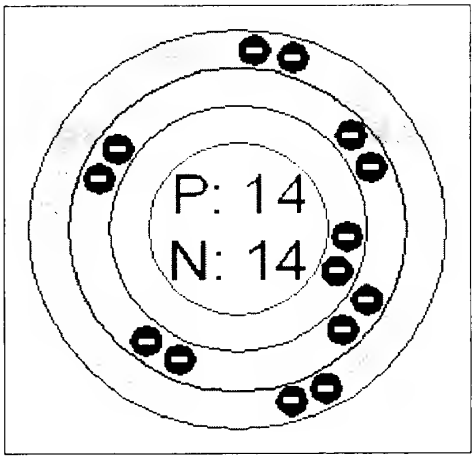
At Chemical Elements.com

Basic Information | Atomic Structure | Isotopes | Related Links | Citing This Page

Basic Information

Name: Silicon
Symbol: Si
Atomic Number: 14
Atomic Mass: 28.0855 amu
Melting Point: 1410.0 °C (1683.15 °K, 2570.0 °F)
Boiling Point: 2355.0 °C (2628.15 °K, 4271.0 °F)
Number of Protons/Electrons: 14
Number of Neutrons: 14
Classification: Metalloid
Crystal Structure: Cubic
Density @ 293 K: 2.329 g/cm^3
Color: grey

Atomic Structure



Number of Energy Levels: 3

First Energy Level: 2
Second Energy Level: 8
Third Energy Level: 4

Isotopes

Isotope	Half Life
Si-28	Stable
Si-29	Stable
Si-30	Stable
Si-31	2.62 hours
Si-32	100.0 years

Facts

Date of Discovery: 1823
Discoverer: Jons Berzelius
Name Origin: From the Latin word *silex* (flint)
Uses: glass, semiconductors
Obtained From: Second most abundant element. Found in clay, granite, quartz, sand

Related Links

Note: The external links below are not a part of this site and their content is not the responsibility of this site

1. Healthworld Online - Silicon
   Contains an "Introduction to Tungsten", among other things

If you know of any other links for Silicon, please let me know

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boiling point, temperature at which a substance changes its state from liquid to gas. A stricter definition of boiling point is the temperature at which the liquid and vapor (gas) phases of a substance can exist in equilibrium. When heat is applied to a liquid, the temperature of the liquid rises until the vapor pressure of the liquid equals the pressure of the surrounding gases. At this point there is no further rise in temperature, and the additional heat energy supplied is absorbed as latent heat of vaporization to transform the liquid into gas. This transformation occurs not only at the surface of the liquid (as in the case of evaporation) but also throughout the volume of the liquid, where bubbles of gas are formed. The boiling point of a liquid is lowered if the pressure of the surrounding gases is decreased. For example, water will boil at a lower temperature at the top of a mountain, where the atmospheric pressure on the water is less, than it will at sea level, where the pressure is greater. In the laboratory, liquids can be made to boil at temperatures far below their normal boiling points by heating them in vacuum flasks under greatly reduced pressure. On the other hand, if the pressure is increased, the boiling point is raised. For this reason, it is customary when the boiling point of a substance is given to include the pressure at which it is observed, if that pressure is other than standard, i.e., 760 mm of mercury or 1 atmosphere (see STP). The boiling point of a solution is always higher than that of the pure solvent; this boiling-point elevation is one of the colligative properties common to all solutions.

melting point
melting point, temperatureat which a substance changes its state from solid to liquid. Under standard atmospheric pressure different pure crystalline solids will each melt at a different specific temperature; thus melting point is a characteristic of a substanee and can be used to identify it. When heat is applied continuously and in sufficient quantity to such solids, the temperature rises steadily until it reaches the point at which liquefaction occurs. Here the rise ceases and no further change in temperature is observed until all of the substance has been converted to liquid. The heat being applied to the substance at that temperature is consumed in bringing about the change of state, and none is available to raise the temperature of that part of the substance already liquefied until all of it has changed to the liquid. If heat is still applied when liquefaction is complete, the temperature will begin to rise again. The quantity of heat necessary to change one gram of any substance from solid to liquid at its melting point is known as its latent heat of fusion and differs for different substances. Ice, for example, requires approximately 80 calories of heat to change each gram to water at its melting point. Because its heat of fusion is relatively high, ice is used in refrigeration. In freezing (the reverse process, i.e., the change from liquid to solid), heat is given off by the substance undergoing the change, and the amount given off is the same as that absorbed in melting.

vaporization
vaporization, change of a liquid or solid substance to a gas or vapor. There is fundamentally no difference between the terms gas and vapor, but gas is used commonly to describe a substance that appears in the gaseous state under standard conditions of pressure and temperature, and vapor to describe the gaseous state of a substance that appears ordinarily as a liquid or solid. Although most substances undergo changes of state in the order of solid to liquid to gas as the

temperature is raised, a few change directly from solid to gas in a process known as sublimation.